

## AMENDMENTS

### *In the Claims:*

Please amend the claims as indicated hereafter.

1. (Currently Amended) A phase change material, ~~material having a selectable phase change temperature in a range between approximately zero degrees Celsius and four degrees Celsius~~ comprising:

a mixture of water and deuterium oxide wherein the mole fraction of deuterium oxide is selected to provide a desired phase change temperature in a range above zero degrees Celsius and below 3.8 degrees Celsius, wherein the mixture is positioned in close proximity to a biological material such that a temperature of the biological material is maintained near the desired phase change temperature.

2. (Original) The phase change material of claim 1 wherein a nucleating agent is added to the mixture.

3. (Original) The phase change material of claim 1 wherein a colorant is added to the mixture.

4. (Original) The phase change material of claim 1 wherein a gel material is added to the mixture.

5. (Original) The phase change material of claim 1 wherein a temperature depression material is added to the mixture.

6. (Currently Amended) ~~A method for using the phase change material of claim 1 for storing a temperature sensitive material in an environment requiring temperatures between approximately zero degrees Celsius and four degrees Celsius~~ A method, comprising the steps of:  
providing a ~~container for holding the sensitive material; and~~ container;  
positioning a biological material within the container; and  
placing ~~[[the]]~~ a phase change material, ~~when in a solid phase,~~ in close proximity to the ~~sensitive material~~ biological material such that ~~[[the]]~~ a temperature of the ~~sensitive material~~ biological material is maintained near ~~[[the]]~~ a phase change temperature of the phase change material, the phase change material composed of a mixture of water and deuterium oxide such that the phase change temperature is above zero degrees Celsius and below 3.8 degrees Celsius.

7. (Currently Amended) ~~A method of keeping a temperature sensitive material at a desired temperature between approximately zero degrees Celsius and four degrees Celsius~~ A method, comprising the steps of:

mixing water and deuterium oxide thereby forming a mixture, wherein the mole fraction of deuterium oxide is selected so the mixture has a desired phase change temperature in a range above zero degrees Celsius and below 3.8 degrees Celsius; and

placing the mixture close to ~~the sensitive material~~ a biological material so that ~~[[the]]~~ a temperature of the ~~sensitive material~~ biological material is maintained at the desired phase change temperature.

8. (Currently Amended) The method of claim 7 wherein the ~~sensitive material~~ biological material and mixture are thermally isolated from the environment.

9. (Canceled)

10. (Currently Amended) A treatment pack for use in physical therapy in order to maintain live tissue within a desired temperature range, ~~having a phase change temperature between approximately zero degrees Celsius and four degrees Celsius~~ comprising:

a pack for holding phase change material; and

a mixture of water and deuterium oxide having a selected mole fraction of deuterium oxide for a desired phase change temperature in a range above zero degrees Celsius and below 3.8 degrees Celsius, wherein the mixture is placed within the pack.

11. (Original) The treatment pack of claim 10 wherein the pack is shaped to conform for a desired treatment.

12. (Original) The treatment pack of claim 10 wherein a colorant is added to the mixture.

13. (Original) The treatment pack of claim 10 wherein a gel is added to the mixture.

14. (Canceled)

15. (Currently Amended) ~~The material of claim 14~~ A material that changes phase at a desired temperature between approximately zero degrees Celsius and four degrees Celsius comprising:

water; and

deuterium oxide wherein a mole fraction of deuterium oxide is chosen so that the phase change temperature of the material is the desired temperature,

wherein the mole fraction is chosen according to the approximate equation, desired temperature =  $3.8 * \text{mole fraction of deuterium oxide}$ .

16. (Currently Amended) ~~The material of claim 14~~ A material that changes phase at a desired temperature between approximately zero degrees Celsius and four degrees Celsius comprising:

water; and

deuterium oxide wherein a mole fraction of deuterium oxide is chosen so that the phase change temperature of the material is the desired temperature,

wherein the material, when in a solid phase, is crushed and serves as a slurry for surrounding a temperature sensitive material.

17. (Currently Amended) The material of claim ~~[[14]]~~ 15 wherein the material is used in a treatment pack.

18-20. (Canceled)

21. (Currently Amended) ~~A method for providing a phase change material having a freeze temperature close to a desired temperature;~~ A method comprising the steps of:

providing water;

selecting an amount of deuterium oxide to be mixed with the water such that a mixture composed of the selected amount of deuterium oxide and the water has a phase change temperature close to ~~[[the]]~~ a desired temperature in a range above zero degrees Celsius and below 3.8 degrees Celsius; and

mixing the water and the selected amount of deuterium oxide thereby forming ~~[[the]]~~ a phase change material; and

positioning the phase change material close to a biological material such that a temperature of the biological material is controlled by the phase change material.

22. (New) The phase change material of claim 1 wherein the biological material comprises a protein.

23. (New) The phase change material of claim 1 wherein the biological material comprises an organ.

24. (New) The phase change material of claim 1 wherein the biological material comprises blood.

25. (New) The phase change material of claim 1 wherein the biological material comprises urine samples.

26. (New) The phase change material of claim 1 wherein the biological material comprises vaccines.

27. (New) The phase change material of claim 1 wherein the biological material comprises living tissue.